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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,808	03/18/2004	Makoto Momota	Q80433	5096

23373 7590 12/23/2005

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WASHINGTON, DC 20037

EXAMINER
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GILLIAM, BARBARA LEE

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/802,808

Applicant(s)

MOMOTA ET AL.

Examiner

Barbara L. Gilliam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed October 7, 2005 has been entered and fully considered.
2. Claims 1-3, 6-17 are present, claims were canceled 4-5.

### ***Terminal Disclaimer***

3. The terminal disclaimer filed on October 7, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 10/809,389 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uetani et al. (US 2001/0044070 A1) in view of Kodama et al. (US 2003/0017415 A1).

- a. Uetani exemplifies a resin A1 comprising the repeating units of 2-ethyl-2-adamantyl methacrylate, 3-hydroxy-1-adamantyl methacrylate, and 5-methacryloyloxy-2,6-norbornanecarbolactone (resin synthesis Ex. 1). The monomers were synthesized from (meth)acrylic acid ([0094]-[0097]). Resist composition were prepared by

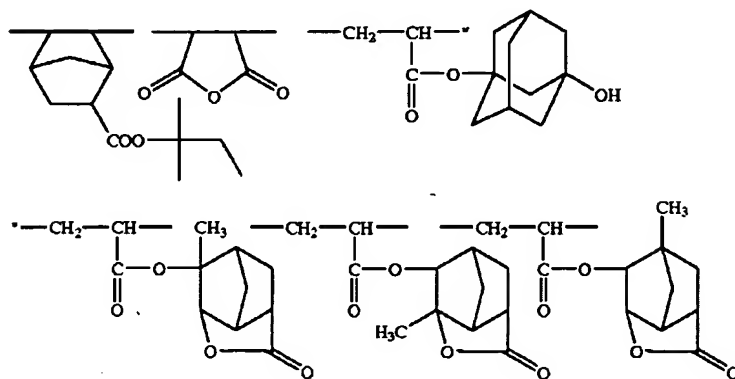
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admixing the said resin with an acid generating agent, a quencher ([0115]-[0119]) and a solvent mixture of 57 parts propylene glycol monomethyl ether acetate (PGMEA) and 3 parts  $\gamma$ -butyrolactone ([0126]-[0128]). See also Table 1. The formed composition was coated on a silicon wafer, exposed with an ArF excimer stepper and developed with aqueous TMAH ([0129]-[0130]). See also resin A2-A6 and AX. It is the examiner's position that 5-methacryloyloxy-2,6-norbornanecarbolactone meets the limitations of claimed formula (VI); 3-hydroxy-1-adamantyl methacrylate meets the limitations of claimed formula (AII) and the limitations of claim 8 would have been obvious in view of the 2-ethyl-2-adamantyl methacrylate. Further, PGMEA meets the limitations of a propylene glycol monoalkyl ether carboxylate and  $\gamma$ -butyrolactone meets the limitations of a cyclic ketone. Uetani et al. do not teach the required acid generator combination however it is the Examiners position the teachings of Uetani et al. are not limited to the acid generators taught therein ([0030]). Therefore it would have been obvious to one of ordinary skill in the art to use any well known acid generator(s) including the preferred combination of Kodama et al., a triarylsulfonium salt and phenylacylsulfonium salt ([0110]-[0115]) with reasonable expectation of preventing sensitivity fluctuation ([0116]). Uetani further teaches that the taught composition may also contain various additives such as sensitizers, dissolution inhibitors, and surfactants ([0090]). Further it is the Examiner's position

6. Claim 1-2, 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al. (US 2003/0017415 A1).

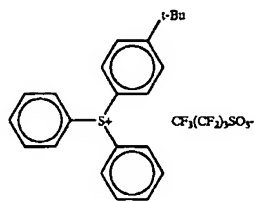
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a. Kodama exemplifies in example IV-44 a resist composition comprising a resin 85 having the following structure:

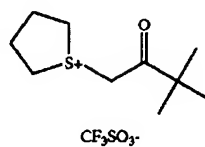


; a photoacid generator mixture

of compound (I-8)

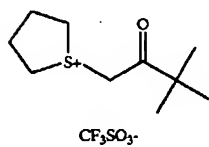


and (II-10)



; a solvent mixture of

propylene glycol monomethyl ether acetate (S1) and g-butyrolactone (S7); a surfactant and an amine compound (c. 187). As correctly pointed out by Applicant,



is not a phenyl phenylacylsulfonium salt compound. However it is the

Examiner's position it would have been obvious to one of ordinary skill in the art to use a phenylacylsulfonium salt in combination with a triarylsulfonium salt as taught by Kodama et al. ([O110]; Table 29 and Table 30) and expect similar results. It is clear from the structure of the resin 85, that more than 50% of the monomers used in the resin synthesis originated from (meth)acrylic acid.

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\*(Note the rejection under 35 USC 102(e) over Kodama et al. (US 6,858,370) is withdrawn in light of the rejection under 102(b) over Kodama et al. (US 2003/0017414 A1).

### ***Response to Arguments***

7. Applicant's arguments filed October 7, 2005 have been fully considered but they are not persuasive in light of the new rejections.

a.  $\gamma$ -butyrolactone meets the present limitations for a "cyclic ketone" as defined by Applicant. Support is found in the specification at page 100, lines 9-15.

b. This rejection is Non-Final because of the withdrawal of the rejection under 35 USC 102(e) over Kodama et al. (US 6,858,370) in light of the rejection under 102(b) over Kodama et al. (US 2003/0017414 A1.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara L. Gilliam whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday 9-5:30.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

b. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



B. L. Gilliam  
Primary Examiner  
Art Unit 1752

bg  
December 20, 2005

1.